November 23, 2010

ELECTRONIC FILING

Julius Knapp
Chief, Office of Engineering and Technology
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

  Re: RM-11429

Dear Mr. Knapp:

  This letter follows up on our conversation on October 13, 2010, in which Utilities Telecom Council ("UTC") and Winchester Cator, LLC ("Winchester") urged the Commission to move forward in adopting a Notice of Proposed Rulemaking in accordance with the Petition filed by UTC and Winchester in the above-captioned docket.

  The attached presentation by Jerry Armes, PE, of Micronet Communications, Inc., analyzes the 14.0–14.5 GHz band's feasibility for smart grid applications and the potential smart grid applications that could use this frequency band if permitted. Specifically, the study estimates that the 14.0-14.5 GHz band can support up to sixteen 30 MHz channels, which could support both WIMAX or LTE broadband point-to-multipoint and backhaul point-to-point services. The attached study also indicates that the 14.0–14.5 GHz band can be used for a variety of smart grid applications, including field area networks, substation networks, automatic metering infrastructure networks, service providers networks, and home area networks. The suitability for specific

applications will depend on the parameters permitted for sharing and other technical provisions adopted by the Commission, but under most realistic parameter assumptions the 14.0–14.5 GHz band is well-suited for substation network operations even at low power.

Please direct any questions regarding this matter to the undersigned.

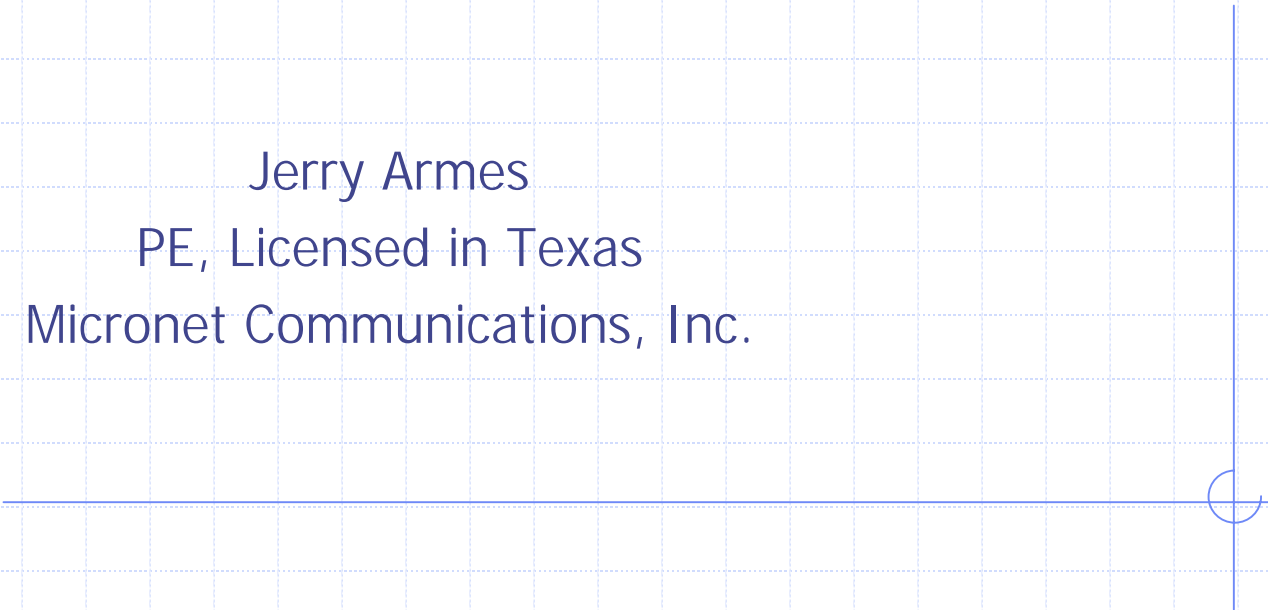Respectfully,

Henry Goldberg
Attorney for Winchester Cator, LLC

cc: Julius Knapp
       Ira Keltz
       Ronald Repasi
       Bruce Romano
       Geraldine Matise
       Mark Settle
       Walter Johnston
       Jamison Prime
       John Leibovitz
       Paul de Sa

Analysis of 14 GHz Applications for the Smart Grid

Jerry Armes

PE, Licensed in Texas

Micronet Communications, Inc.

(14,000 – 14,500) MHz

◆ This band can support up to sixteen 30 MHz channels, and provides the capability to support both WIMAX or LTE Broadband PMP and Backhaul PTP services

◆ Rain sensitivity will limit PTP path lengths to 1-2 miles for high operational availability requirements

◆ Lower availability traffic can be carried on paths of 10-20 miles in length in this band

14,000 – 14,500 MHz (cont)

◆ There are interference issues with many frequency bands used by utilities and others.

◆ Interference into a WIMAX/LTE base station by a nearby satellite uplink site can easily disable the base station

◆ The same is true at 6 GHz when a nearby satellite uplink site transmits into a co-channel PTP microwave receiver

◆ When two such facilities have the potential to interfere, they cannot share a common channel, leading to the likely need for channel hopping

◆ The interference issues posed by Ku band satellite uplink facilities appear to be manageable.

Wireless Performance at 14 GHz

◆ For paths of Length 1-2 miles, fade margins of 30-40 db are possible in (200 mm/hr) Heavy Rain depending on antenna sizes

◆ For Light Rain (10 mm/hr), 30-40 db fade margins are possible over 10-20 mile paths, depending on antenna sizes

14 GHz Potential Smart Grid Apps

◆ There are a number of networks within the Smart Grid, each having their own requirements, coverage areas, etc.

◆ Five candidates are addressed here:

- Field Area Networks
- Substation Networks
- Automatic Metering Infrastructure Networks
- Service Provider Networks
- Home Area Networks

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Candidate Wireless Networks for 14 GHz
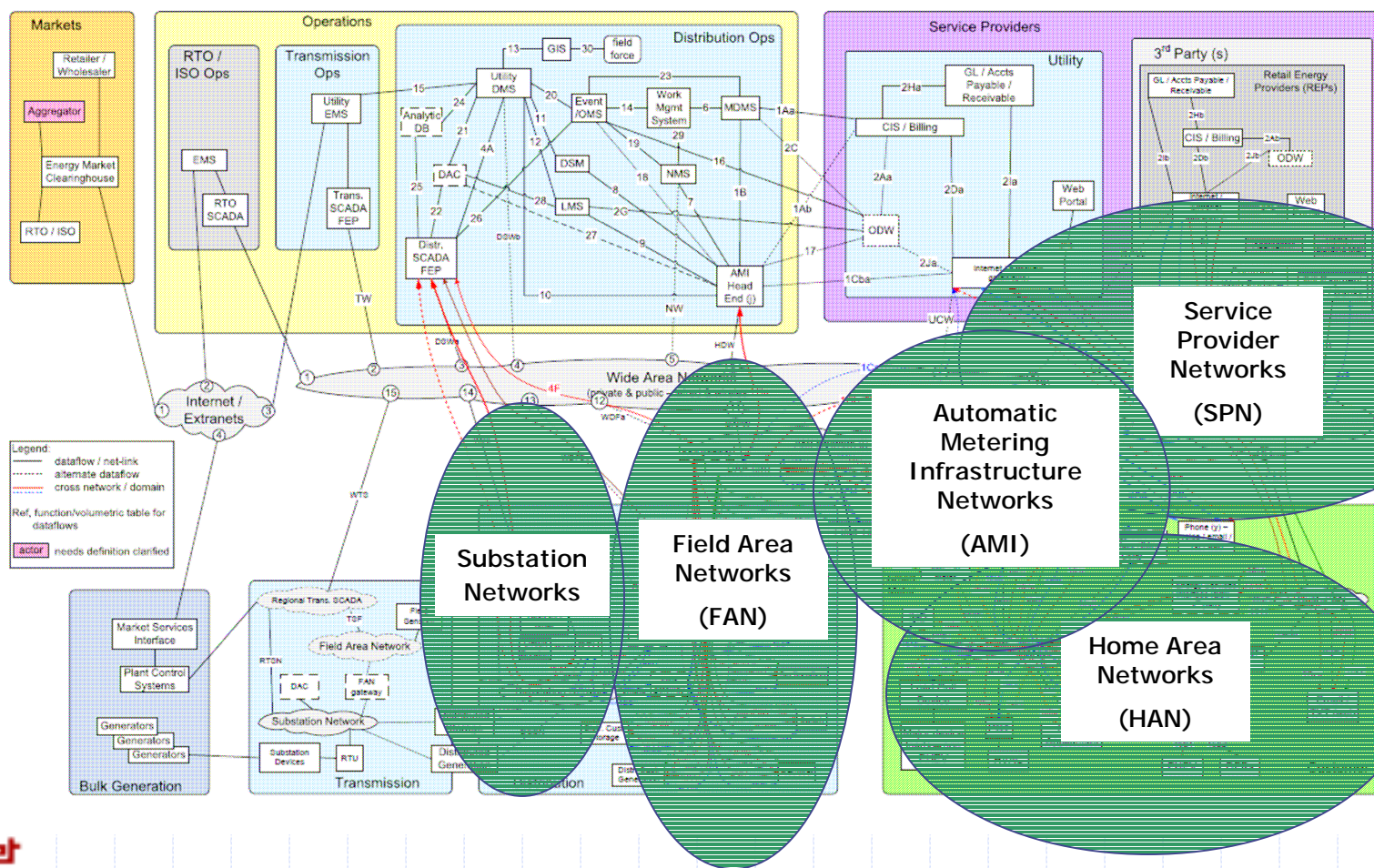
Field Area Networks (FAN)

- Assumption: Field Devices do not necessarily tie to a substation and can be distributed over the entire service area of the utility

- Assumption: Individual Device Frequency of Read Status/Data varies from every 2 minutes to every 4 hours with an average payload of 250 bytes with message latency averaging 2 sec

- For 10,000 devices delivering 1000 bytes/hour, the FAN traffic would be 10 Mbytes/hour

Substation Networks

◆ Assumption: 256 KB/s at each substation for SCADA and Security Monitoring

◆ For a sample of 500 Substations, network traffic of 16 Mbytes/sec would be generated over the entire network

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Home Area Networks

- Assumption: 100 KByte/s HAN Interface supporting message payloads for 30 HAN devices per meter, with no overhead
- Assumption: Entities other than Homes will utilize the HAN connections as well, including farms with outbuildings, multi-building factories, etc. For such entities, 100 HAN devices per meter would not be unreasonable
- For a large Metropolitan area with 2.5 Million homes, each with 30 HAN devices, and an additional 50,000 businesses with 100 devices, the total network traffic generated is 8 Gbytes/sec without protocol overhead

Service Provider Networks

◆ Assumption: 100 Mbytes/s to support wireless day-day transactional traffic for each supplier/reseller

◆ With 100 suppliers/resellers, this would generate 10 Gigabytes/s of data

AMI Networks

- ◆ Assumption: 2 - 4 Gigabytes of traffic per month generated by 7500 meters
- ◆ Assumption: Traffic cited is AMI traffic only and does not include HAN traffic

Applications

◆ A 14 GHz Base Station located at a Substation could carry the Substation Network traffic at a high reliability and Field Area Network Device traffic within its coverage area at a reduced level of reliability

◆ Additional channels can/should be used for high capacity backhaul, typically with an MPLS WAN alternate routing for redundancy for data elements requiring higher reliabilities

14 GHz Base Stations

◆ A logical approach is to use CDMA in order to minimize the effects of co-channel interference from satellite facilities

◆ This can be coupled with multiple channel transmission and the use of frequency hopping by meters and field devices